

I claim:

1. The method for the detection of the adulterant in Urine Luck™ in a sample of urine comprising the steps of;

(A) preparing a dry chemistry test means by successively impregnating a solid, carrier matrix with reagent solutions containing an indicator and a buffer, and

(B) drying the impregnated, solid carrier matrix, and finally

(C) dipping said dry chemistry test means into urine, and

(D) observing the detectable response in the form of a color developed in the presence or absence of the adulterant.

2. The method according to claim 1 wherein the detectable response is a color change visible to the human eye or in the visible light spectrum.

3. The method according to claim 1 wherein the sample of urine can be substituted from the following group consisting of serum, whole blood, cerebral spinal fluid, gastric fluid, hair homogenates, sweat extracts, saliva or other biological fluid.

4. The method according to claim 1 in which the indicator can be selected from the following group consisting of 1,2-phenylenediamine, 1,2,3,4-tetrahydrobenzo(h)quinolin-3-ol, 1,2,3,4-tetrahydrobenzo(h)quinolone, 1,2,3,4-tetrahydrobenzo(h)quinaldine, 3-hydroxy-1,2,3,4-tetrahydrobenzo(h)quinolone, 3-hydroxy-N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, 3-acetoxy-N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, 1,3-phenylenediamine, 1,2,3,4-tetrahydroquinoline, 1,2,3,4-tetrahydroisoquinoline hydrochloride, 7,8-benzoquinoline, 1,2,3,4-tetrahydro-3-isoquinolinecarboxylic acid hydrochloride, 1,2,3,4-tetrahydro-1-naphthylamine hydrochloride, naphthylamine, N,N-dialkyl-alpha-naphthylamine, phenolphthalin, 2,2'-Azino-di-(3-ethylbenzthiazolinesulfonic acid), 2,2'-Azino-di-(3-ethylbenzthiazolinesulfonic acid) diammonium salt, cyanoditolyl tetrazolium chloride, 3,3'-diaminobenzidine, o-dianisidine, dimethoxybenzidine, o-phenylenediamine, 3-amino-9-ethylcarbazole, 3,3'-5,5'-tetramethylbenzidine, dimethoxybenzidine, 8-hydroxyquinoline, m-phenylenediamine, 3-dimethylaminobenzoic acid, 5-aminosalicylic acid, 4-chloro-1-naphthol, diazotizable amine, sulfanilic acid, arsanilic acid, sulfamilamide, aminobenzoic acid or 4-aminoantipyrine in combination with one of the following compounds; p-

hydroxybenzene sulfonate, p-hydroxybenzoic acid, n-ethyl-n-(2-hydroxy-3-sulfopropyl)-m-toluidine, n-ethyl-n-sulfopropyl-m-toluidine, 2-hydroxy-3,5-dichlorobenzenesulfonic acid, 3-hydroxy-2,4,6-triiodobenzoic acid, and 3-hydroxy-2,4,6-tribromobenzoic acid.

5. The method according to claim 1 in which the buffer can be selected from the following group consisting of citrate, borate, borax, sodium tetraborate decahydrate, sodium perchlorate, sodium chlorate, sodium carbonate, (Tris[hydroxymethyl]aminomethane), (2-[N-Morpholino]ethanesulfonic acid), (bis[2-Hydroxyethyl]iminotris[hydroxymethyl]methane; 2-bis[2-hydroxyethyl]amino-2-[hydroxymethyl-1,3-propanediol), (N-[2-Acetamido]-2-iminodiacetic acid; N-[Carbaoylmethyl]iminodiacetic acid), (2-[(2-Amino-2-oxoethyl)amino]ethanesulfonic acid; N-[2-Acetamido]-2-aminoethanesulfonic acid), (PiperazineN-N'-bis[2-ethanesulfonic acid]); 1,4-Piperzinedethanesulfonic acid), (3-[N-Morpholino]-2-hydroxypropanesulfonic acid), (1,3-bis[tris(Hydroxymethyl)methylamino]propane), (N,N-bis[2-Hydroxyethyl]-2-aminoethanesulfonic acid; 2-bis(2-Hydroxyethyl)amino]ethanesulfonic acid), (3-[N-Morpholino]propanesulfonic acid), (N-tris[Hydroxymethyl]methyl-2-aminomethanesulfonic acid; 2[2-Hydroxy-1,1-bis(hydroxymethyl)-ethyl]amino)ethanesulfonic acid), (3-[N,N-bis(2-Hydroxyethyl)amino]-2-hydroxypropanesulfonic acid), (3-[N-tris(Hydroxyethyl)methylamino]-2-(hydroxypropanesulfonic acid), (N-[2-Hydroxyethyl]piperazine-N'-[2Hydroxypropanesulfonic acid]), (Piperazine-N,N'-bis[2-hydroxypropanesulfonic acid]), (N-[2-Hydroxyethyl]piperazine-N'-[3-propanesulfonic acid), (triethanolamine), (N-tris[Hydroxymethyl]methyllycine; N-[2-Hydroxy-1-1-bis(hydroxymethyl)etyl]glycine), (N,N-bis[2-Hydroxyethyl]glycine), (N-tris[Hydroxymethyl]methyl-3-aminopropanesulfonic acid; ([2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]amino)-1-propanesulfonic acid), (3-[(1,1-Dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid), (2-[N-Cyclohexylamino]ethanesulfonic acid), (3-[Cyclohexylamino]-2-hydroxy-1-propanesulfonic acid), 2-Amino-2-ethyl-1-propanol, (3-[cyclohexylamino]-1-propanesulfonic acid), hydrochloric acid, phosphoric acid, lactic acid, sulfuric acid, nitric acid, chromic acid, boric acid, citric acid, oxalic acid, tartaric acid, succinic acid, perchloric acid, potassium hydrogen tartrate, potassium hydrogen phthalate, calcium

hydroxide, phosphate, bicarbonate, sodium hydroxide, potassium hydroxide, tartrate, oxalate or succinate.

6. The method according to claim 1 in which the solid carrier matrix can be any form of an absorbent solid phase carrier selected from the following group consisting of filter paper, cellulose or synthetic resin fleeces.

7. A method for the detection of the adulterant in Urine Luck™ in a sample comprises the steps of

(A) placing aliquots of an unknown urine and calibrator to be tested in automated analyzer sampling cups, placing the cups in a sampling tray within an automated analyzer,

(B) transferring the aliquots of sample and calibrator to cuvettes mounted within the automated analyzer,

(C) injecting a first reagent composition (R-1) comprising an indicator and buffer in an aqueous medium into the cuvettes, mixing sample and reagent,

(D) reading the absorbance values of reaction mixture composed of reagents and test samples to include unknown specimens and calibrator at specified intervals, in accordance with a preprogrammed code introduced into the automated analyzer, at a preprogrammed monochromatically specified wavelength, and

(E) comparing absorbance of the first reagent composition plus the unknown samples with that of the first reagent composition plus the calibrator containing a zero reference point, and thereby determining the presence or absence of the adulterant.

8. The method according to claim 7 wherein the sample of urine can be substituted from the following group consisting of serum, whole blood, cerebral spinal fluid, gastric fluid, hair homogenates, sweat extracts, saliva or other biological fluid.

9. The method according to claim 7 in which the indicator can be selected from the following group consisting of 1,2-phenylenediamine, 1,2,3,4-tetrahydrobenzo(h)quinolin-3-ol, 1,2,3,4-tetrahydrobenzo(h)quinolone, 1,2,3,4-tetrahydrobenzo(h)quinaldine, 3-hydroxy-1,2,3,4-tetrahydrobenzo(h)quinolone, 3-hydroxy-N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, 3-acetoxy-N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, 1,3-phenylenediamine, 1,2,3,4-tetrahydroquinoline, 1,2,3,4-tetrahydroisoquinoline

hydrochloride, 7,8-benzoquinoline, 1,2,3,4-tetrahydro-3-isoquinolinecarboxylic acid hydrochloride, 1,2,3,4-tetrahydro-1-naphthylamine hydrochloride, naphthylamine, N,N-dialkyl-alpha-naphthylamine, phenolphthalin, 2,2'-Azino-di-(3-ethylbenzthiazolinesulfonic acid), 2,2'-Azino-di-(3-ethylbenzthiazolinesulfonic acid) diammonium salt, cyanoditolyl tetrazolium chloride, 3,3'-diaminobenzidine, o-dianisidine, dimethoxybenzidine, 0-phenylenediamine, 3-amino-9-ethylcarbazole, 3,3'-5,5'-tetramethylbenzidine, dimethoxybenzidine, 8-hydroxyquinoline, m-phenylenediamine, 3-dimethylaminobenzoic acid, 5-aminosalicylic acid, 4-chloro-1-naphthol, diazotizable amine, sulfanilic acid, arsanilic acid, sulfanilamide, aminobenzoic acid or 4-aminoantipyrine in combination with one of the following compounds; p-hydroxybenzene sulfonate, p-hydroxybenzoic acid, n-ethyl-n-(2-hydroxy-3-sulfopropyl)-m-toluidine, n-ethyl-n-sulfopropyl-m-toluidine, 2-hydroxy-3,5-dichlorobenzenesulfonic acid, 3-hydroxy-2,4,6-triiodobenzoic acid, and 3-hydroxy-2,4,6-tribromobenzoic acid.

10. The method according to claim 7 in which the buffer can be selected from the following group consisting of citrate, borate, borax, sodium tetraborate decahydrate, sodium perchlorate, sodium chlorate, sodium carbonate, (Tris[hydroxymethyl]aminomethane), (2-[N-Morpholino]ethanesulfonic acid), (bis[2-Hydroxyethyl]iminotris[hydroxymethyl]methane; 2-bis[2-hydroxyethyl]amino-2-[hydroxymethyl-1,3-propanediol], (N-[2-Acetamido]-2-iminodiacetic acid; N-[Carbaoylmethyl]iminodiacetic acid), (2-[(2-Amino-2-oxoethyl)amino]ethanesulfonic acid; N-[2-Acetamido]-2-aminoethanesulfonic acid), (PiperazineN-N'-bis[2-ethanesulfonic acid]); 1,4-Piperzinedethanesulfonic acid), (3-[N-Morpholinol]-2-hydroxypropanesulfonic acid), (1,3-bis[tris(Hydroxymethyl)methylamino]propane), (N,N-bis[2-Hydroxyethyl]-2-aminoethanesulfonic acid; 2-bis(2-Hydroxyethyl)amino]ethanesulfonic acid), (3-[N-Morpholino]propanesulfonic acid), (N-tris[Hydroxymethyl]methyl-2-aminomethanesulfonic acid; 2[2-Hydroxy-1,1-bis(hydroxymethyl)-ethyl]amino)ethanesulfonic acid), (3-[N,N-bis(2-Hydroxyethyl)amino]-2-hydroxypropanesulfonic acid), (3-[N-tris(Hydroxyethyl)methylamino]-2-(hydroxypropanesulfonic acid), (N-[2-Hydroxyethyl]piperazine-N'-(2Hydroxypropanesulfonic acid]), (Piperazine-N,N'-bis[2-hydroxypropanesulfonic acid]), (N-[2-Hydroxyethyl]piperazine-N'-[3-propanesulfonic

acid), (triethanolamine), (N-tris[Hydroxymethyl]methyllycine; N-[2-Hydroxy-1-1-bis(hydroxymethyl)etyl]glycine), (N,N-bis[2-Hydroxyethyl]glycine), (N-tris[Hydroxymethyl]methyl-3-aminopropanesulfonic acid; ([2-Hdrosy-1,1-bis(hydroxymethyl)ethyl]amino)-1-propanesulfonic acid), (3-[(1,1-Dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid), (2-[N-Cyclohexylamino]ethanesulfonic acid), (3-[Cyclohexylamino]-2-hydroxy-1-propanesulfonic acid), 2-Amino-2-ethyl-1-propanol, (3-[cyclohexylamino]-1-propanesulfonic acid), hydrochloric acid, phosphoric acid, lactic acid, sulfuric acid, nitric acid, chromic acid, boric acid, citric acid, oxalic acid, tartaric acid, succinic acid, perchloric acid, potassium hydrogen tartrate, potassium hydrogen phthalate, calcium hydroxide, phosphate, bicarbonate, sodium hydroxide, potassium hydroxide, tartrate, oxalate or succinate.

11. The method for the detection of the adulterant in Urine Luck™ in a sample of urine comprising the steps of;

- (A) preparing a dry chemistry test means by successively impregnating a solid, carrier matrix with reagent solutions containing an indicator and a buffer, and
- (B) drying the impregnated, solid carrier matrix, and finally placing the dried carrier matrix in fluid contact with lateral flow material, and
- (C) a drop of urine is applied to the dried carrier matrix which is in fluid contact with the lateral flow material and migrates to the opposite or terminal end of the strip, as the urine migrates across the lateral flow material and comes into contact with the dried carrier matrix, the urine will saturate the pad and causes a chemical reaction between the impregnated chemicals and the adulterant in the urine,
- (D) then observing the detectable response in the form of a color developed in the presence or absence of the adulterant.

12. The method according to claim 11 wherein the sample of urine can be substituted from the following group consisting of serum, whole blood, cerebral spinal fluid, gastric fluid, hair homogenates, sweat extracts, saliva or other biological fluid.

13. The method according to claim 11 in which the indicator can be selected from the following group consisting of 1,2-phenylenediamine, 1,2,3,4-tetrahydrobenzo(h)quinolin-3-ol, 1,2,3,4-tetrahydrobenzo(h)quinolone, 1,2,3,4-

tetrahydrobenzo(h)quinaldine, 3-hydroxy-1,2,3,4-tetrahydrobenzo(h)quinolone, 3-hydroxy-N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, N-methyl-1,2,3,4-tetrahydrobenzo(h)quinolone, 1,3-phenylenediamine, 1,2,3,4-tetrahydroquinoline, 1,2,3,4-tetrahydroisoquinoline hydrochloride, 7,8-benzoquinoline, 1,2,3,4-tetrahydro-3-isoquinolinecarboxylic acid hydrochloride, 1,2,3,4-tetrahydro-1-naphthylamine hydrochloride, naphthylamine, N,N-dialkyl-alpha-naphthylamine, phenolphthalin, 2,2'-Azino-di-(3-ethylbenzthiazolinesulfonic acid), 2,2'-Azino-di-(3-ethylbenzthiazolinesulfonic acid) diammonium salt, cyanoditolyl tetrazolium chloride, 3,3'-diaminobenzidine, o-dianisidine, dimethoxybenzidine, O-phenylenediamine, 3-amino-9-ethylcarbazole, 3,3'-5,5'-tetramethylbenzidine, dimethoxybenzidine, 8-hydroxyquinoline, m-phenylenediamine, 3-dimethylaminobenzoic acid, 5-aminosalicylic acid, 4-chloro-1-naphthol, diazotizable amine, sulfanilic acid, arsanilic acid, sulfanilamide, aminobenzoic acid or 4-aminoantipyrine in combination with one of the following compounds; p-hydroxybenzene sulfonate, p-hydroxybenzoic acid, n-ethyl-n-(2-hydroxy-3-sulfopropyl)-m-toluidine, n-ethyl-n-sulfopropyl-m-toluidine, 2-hydroxy-3,5-dichlorobenzenesulfonic acid, 3-hydroxy-2,4,6-triiodobenzoic acid, and 3-hydroxy-2,4,6-tribromobenzoic acid.

14. The method according to claim 11 in which the buffer can be selected from the following group consisting of citrate, borate, borax, sodium tetraborate decahydrate, sodium perchlorate, sodium chlorate, sodium carbonate, (Tris[hydroxymethyl]aminomethane), (2-[N-Morpholino]ethanesulfonic acid), (bis[2-Hydroxyethyl]iminotris[hydroxymethyl]methane; 2-bis[2-hydroxyethyl]amino-2-[hydroxymethyl]-1,3-propanediol), (N-[2-Acetamido]-2-iminodiacetic acid; N-[Carbaoylmethyl]iminodiacetic acid), (2-[(2-Amino-2-oxoethyl)amino]ethanesulfonic acid; N-[2-Acetamido]-2-aminoethanesulfonic acid), (PiperazineN-N'-bis[2-ethanesulfonic acid]); 1,4-Piperzinedethanesulfoic acid), (3-[N-Morpholinol]-2-hydroxypropanesulfonic acid), (1,3-bis[tris(Hydroxymethyl)methylamino]propane), (N,N-bis[2-Hydroxyethyl]-2-aminoethanesulfonic acid; 2-bis(2-Hydroxyethyl)amino]ethanesulfonic acid), (3-[N-Morpholino]propanesulfonic acid), (N-tris[Hydroxymethyl]methyl-2-aminomethanesulfonic acid; 2[2-Hydroxy-1,1-bis(hydroxymethyl)-ethyl]amino]ethanesulfonic acid), (3-[N,N-bis(2-

Hydroxyethyl)amino]-2-hydroxypropanesulfonic acid), (3-[N-tris(Hydroxyethyl)methylamino]-2-(hydroxypropanesulfonic acid), (N-[2-Hydroxyethyl]piperazine-N'-[2Hydroxypropanesulfonic acid]), (Piperazine-N,N'-bis[2-hydroxypropanesulfonic acid]), (N-[2-Hydroxyethyl]piperazine-N'-[3-propanesulfonic acid]), (triethanolamine), (N-tris[Hydroxymethyl]methyllycine; N-[2-Hydroxy-1-1-bis(hydroxymethyl)etyl]glycine), (N,N-bis[2-Hydroxyethyl]glycine), (N-tris[Hydroxymethyl]methyl-3-aminopropanesulfonic acid; ([2-Hdroxy-1,1-bis(hydroxymethyl)ethyl]amino)-1-propanesulfonic acid), (3-[(1,1-Dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid), (2-[N-Cyclohexylamino]ethanesulfonic acid), (3-[Cyclohexylamino]-2-hydroxy-1-propanesulfonic acid), 2-Amino-2-ethyl-1-propanol, (3-[cyclohexylamino]-1-propanesulfonic acid), hydrochloric acid, phosphoric acid, lactic acid, sulfuric acid, nitric acid, chromic acid, boric acid, citric acid, oxalic acid, tartaric acid, succinic acid, perchloric acid, potassium hydrogen tartrate, potassium hydrogen phthalate, calcium hydroxide, phosphate, bicarbonate, sodium hydroxide, potassium hydroxide, tartrate, oxalate or succinate.

15. The method according to claim 11 in which the solid carrier matrix can be any form of an absorbent solid phase carrier selected from the following group consisting of filter paper, cellulose or synthetic resin fleeces.

16. The method according to claim 11 in which the lateral flow material can be selected from the following group consisting of filter paper, cellulose, cellulose acetate, nitrocellulose, mixed ester, teflon, polyvinylidene difluoride (PVDF), polytetrafluoroethylene (PTFE), polysulfone, cotton linter, non-woven rayon, glass fiber, nylon, or ion exchange.